Mental Health Planning During the COVID-19 Crisis: A Systematic Review of Online International Strategies and Recommendations

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Abstract

Background

Mental Health care systems have been dramatically affected by COVID-19. Containment measures have been imposed with negative consequences on population mental health. Therefore, an increase in both symptomatology and mental disorders incidence is expected. This research aims to identify, describe and assess the empirical background on online strategies and recommendations developed by international organizations and governments to cope with the psychological impact of COVID-19.

Methods

A new questionnaire has been developed to identify the existence of common patterns in the selected documents. Questions were classified in three domains: COVID-19 information, mental health strategies and mental health recommendations. The PRISMA statements were adapted to review online documents. A two-steps cluster analysis was carried out to highlight underlying behaviors in data (patterns). Results were shown by using spider graphs (pattern profiles). Multidimensional links between questions were identified and assessed by conceptual maps.

Results

26 documents were included in the review. The questionnaire assessed document complexity and identified key mental health issues (i.e. tools for dealing with stress, depression and anxiety), which show a high agreement level among them. Cluster analysis highlighted the existence of common patterns in the selected question domains. Strong relationships between individual questions were also identified such as, for example, *include psychological tips for maintaining good mental health and coping with COVID-19* (question nº 4), *describe some psychological skills to help people cope with anxiety and worry about COVID-19* (question nº 6) and, finally, *promote social connection at home* (question nº 8).

Conclusions

When fast results are needed to develop health strategies and policies, rapid reviews associated to statistical and graphical methods are essential. Results obtained from the proposed analytical procedures are relevant to a) classify the documents about the psychological impact of COVID-19, b) develop new documents according to the selected objectives for matching population needs, c) improve psychological interventions in a pandemic, and d) adapt new documents to local situations. The relevance of adapting e-mental health to community mental health care model principles was highlighted. For developing e-mental health potential, some problems related to the digital gap, stigma and ethical issues must be considered.

Background

The COVID-19 outbreak has created an unprecedented crisis in modern health care systems [1]. This disease originated in Wuhan (Hubei Province, China) at the end of 2019 [2]. On January 30th, 2020, the World Health Organization [3] (WHO) declared a public and international health emergency.

On May 1st, 2020, there were 3,318,428 confirmed cases and 234,250 deaths worldwide [4]. The incidence and mortality rate of COVID-19 have saturated health systems in a number of countries. To a greater or lesser extent, containment measures such as social distancing, quarantine and self-isolation have been imposed worldwide [5]. Containment measures can have negative impacts on population mental health (MH) [6]. People may be affected during and after containment by the precipitation of new symptoms or aggravation of previous conditions [7–10]. Considering the vulnerability of MH users, decision makers should also prevent a potential increase in inequalities because they experience more distress, fear, anxiety and depression than the general population [11], which can worsen their previous circumstances [12].

Female gender, being a student and poor health status are factors that have been associated with greater psychological impact [13]. Li, Wang, Xue, Zhao and Zhu [14] found that after the COVID-19 outbreak, negative emotions increased while happiness and life satisfaction decreased. Patients with COVID-19 manifested posttraumatic stress symptoms before and after discharge [15, 16]. People in quarantine and COVID-19 patients feel fear, boredom, anger, loneliness and/or stress [17] and may suffer from hate crimes, fear, alienation and discrimination [18]. People who have lost their loved ones are prone to developing MH complications related to grief after their unexpected loss and social isolation [19].

Professionals who care for COVID-19 patients are highly susceptible to psychological burden [20]. The fear of becoming infected, the suffering of patients and relatives, shortages of medical and protection supplies, and socioeconomic uncertainty increase their psychological impact [21, 22]. Therefore, it is crucial to support these professionals by designing specific MH interventions [23], such as developing screenings to detect depression and anxiety [17] and to assess the psychological condition of COVID-19 patients [7].

In this new environment, it is likely that the balanced MH care model [24] must be adapted considering the problem of dealing with the community-based care paradigm in a situation where safe distance between people may be mandatory.

Starace and Ferrara [25] describe a proposal for MH care provision during the pandemic: 1) outpatient care should be mainly provided online by telephone or videoconference; 2) in case of crisis, users could access acute MH care in hospitals; 3) day care services will be closed during the pandemic, when necessary online interventions like telephone monitoring and face-to-face home visits should be available; 4) clinical emergencies will be admitted in inpatient units, although length of stay is kept to a minimum and, whenever possible, crisis should be treated outside the hospital; and 5) short and long-term residential care facilities will provide care normally but without admitting new patients, with

exceptions as an alternative to inpatient care. Special prevention measures, such as training in the use of personal protection equipment, must be available at any time or place. However, this model shows some drawbacks, especially for both older adults who lack digital skills [26] and people with cognitive impairments.

The pandemic makes face-to-face intervention reduction necessary [7]. e-MH should be reinforced [27] because it increases accessibility and equity when MH staff are specifically trained [28, 29].

International organizations have published many recommendations and tips to cope with this health crisis. The WHO proposes to guide people in psychosocial aspects related to COVID-19, to ensure referral pathways among sectors, to provide MH and psychosocial support for all people, and to meet population needs in people with pre-existing conditions, older adults, etc. [30]. In addition, WHO is concerned about avoiding stigma and addressing bereavement and other psychological consequences. The American Psychological Association [31] (APA) provides a wide range of resources for e-MH and telepsychology. It shares scientific findings that can help people cope with the emotional impact of the pandemic. For the general population, specific strategies have been proposed for reducing stress, anxiety and grief, including measures for those collectives triggered by domestic violence and child abuse. The APA advises seeking help when needed, so it is necessary to improve accessibility to MH services. Staying healthy at home is essential for the United Nations (UN) [32], especially for those suffering anxiety or stress. The UN's MH strategy proposes good practices for teleworking, wellbeing management and talking with children, also highlights telepsychiatry and telecounseling roles. The UN is concerned about the existence of reliable information sources about how to access MH services and how to obtain medication. Globally, strategies to mitigate the pandemic impact focus on promoting engagement with MH users, clinicians and state policies [33].

Public servants in the Spanish Mental Health Network want to summarize the main recommendations and guidelines from international sources in order to design documents for dealing with psychological impact of COVID-19. This research aims to identify, describe and assess the empirical background on online strategies and recommendations developed by international organizations and governments to cope with the psychological impact of COVID-19. Potential common patterns (links between questions) among selected documents will be identified and described.

Methods

Search strategy and eligibility criteria

In this paper, a strategy is a set of general orientations to guide the design and development of specific policies. A recommendation is a specific action, clinical or organizational, implemented by decision makers to change the situation of any system (in this case, a MH system).

Due to the urgent character of current policy-making, an adaptation of the PRISMA guidelines [34], similar to the Cochrane Rapid Reviews [35], was developed to carry out the systematic review. The search

strategy was based on the PICOS research question where the population (P) was MH services and systems (“mental health services” OR “mental health systems”). The intervention (I) was any international online MH strategy or recommendation developed to address the COVID-19 psychological impact. The comparator (C) was not applicable. The outcomes (O) were any online international report or guide that included any MH and/or psychosocial considerations for the virus. Finally, the setting (S) referred to the countries. After checking different combinations of the key words, the final search strategy was: “Covid” + “mental health”. This approach combined the methodological rigor of systematic reviews with the need to produce useful results for decision makers quickly.

The inclusion criteria were online MH reports or guides (English, Spanish, French or Portuguese) that have been developed at any time to address the psychological impact of COVID-19. Exclusion criteria were documents not focused on general MH, lacking information about online MH care provision, including strategies for workers and studying the pandemic economic impact. The search strategy was piloted in Google on April 15th, 2020.

Study Selection

CGA and NA performed the selection process in the eligibility phase by reading the document full text, including their links. The concordance rate between authors was analyzed using Kappa and two-way random ICC tests. Selected documents were characterized by including general data and by identifying symptomatology and mental disorders. Considering the characteristics of the included studies and the objectives of this research, it was no possible to carry out a meta-analysis. Nevertheless, the documents content was statistically analyzed.

Data Collection

CGA and NA independently extracted data from the included studies. If discrepancies between authors are found, LSC made the final decision. The information extracted were related to the country of publication, type of document, symptomatology, mental disorders, Covid-19 information, MH strategies and MH recommendations.

Checklist For Assessing Guides

A new questionnaire for assessing the content of the selected document was designed to identify common patterns (key subjects for decision makers and their links). Questions were selected following the guidelines from the WHO, APA, UN, Centers for Disease Control and Prevention and MH Europe. The items (39) were selected by a call group from the PSICOST scientific group (Table 1) and organized in three domains: 1) COVID-19 general information, 2) MH strategies and 3) MH recommendations.

Domains 2 and 3 distinguish 1) MH topics, e.g., psychological tips and anxiety, from 2) MH-related topics, e.g., people with disabilities and healthcare workers.

Table 1
Checklist for assessing the selected guides

Item	Question: Does the document… (answer: Yes or No)	Cod 1[1]	Cod 2[2]
1	*…include information related to the latest information on COVID-19?*	1	
2	*…include information on the strategies developed by the government in response to the pandemic…)?*	1	
3	*…include information on the latest news about the global response to the COVID-19 outbreak?*	1	
4	*…include psychological tips for maintaining good MH and coping with COVID-19?*	2	1
6	*…describe some psychological skills to help people cope with anxiety and worry about COVID-19?*	2	1
8	*…promote social connection at home?*	2	1
26	*…include information on how to support a loved one who is very anxious about COVID-19?*	2	1
27	*…include information on how to manage stress while people await test results?*	2	1
28	*…include information on how to manage stress if people test positive?*	2	1
29	*…include information on stigma and how to reduce it?*	2	1
32	*…include information on how to manage stress and anxiety?*	2	1
39	*…include links for older adults related to any symptoms or mental disorders?*	2	1
5	*…include information on how to maintain a healthy lifestyle?*	2	2
25	*…include special mention of people with disabilities?*	2	2
30	*…include information for healthcare workers?*	2	2
31	*…include information on how to support health care workers?*	2	2
33	*…develop a strategy for identifying healthcare staff needs as a result of the coronavirus pandemic?*	2	2
34	*…include information for domestic violence victims?*	2	2
35	*…include information for caregivers?*	2	2
36	*…include information on financial support for businesses/people affected by COVID-19?*	2	2

[1] Cod 1: (1) COVID-19 general information, (2) MH strategy and (3) MH recommendation.

[2] Cod 2: (1) MH topics (e.g., symptoms, diseases) and (2) MH-related topics (e.g., physical health).

Item	Question: Does the document… (answer: Yes or No)	Cod 1[1]	Cod 2[2]
37	*…provide advice on medication access during the COVID-19 pandemic?*	2	2
38	*…consider working at home?*	2	2
7	*…provide emotional support, such as conversations for sharing tips online?*	3	1
9	*…describe how to access MH services?*	3	1
10	*…provide phone or online MH services?*	3	1
11	*…offer an online psychological assessment?*	3	1
12	*…provide feedback on the psychological assessment results?*	3	1
13	*…provide MH treatment/intervention alternatives?*	3	1
14	*…provide telephone or online contact with the general practitioner?*	3	1
15	*…provide telephone or online contact with the psychologist?*	3	1
16	*…provide telephone or online contact with another MH professional?*	3	1
17	*…provide an online community forum?*	3	1
18	*…provide suicide and crisis support?*	3	1
21	*…provide steps for understanding children's feelings?*	3	1
19	*…include information for parents?*	3	2
20	*…include information on how to explain the coronavirus to children?*	3	2
22	*…provide alternatives to older adults to stay connected online?*	3	2
23	*…help in establishing online and learning digital literacy skills?*	3	2
24	*…include guidelines for COVID-19 outbreaks in residential care facilities (for people with physical and MH disabilities, other community-based health facilities, e.g., drug and alcohol services, community MH)?*	3	2

[1] Cod 1: (1) COVID-19 general information, (2) MH strategy and (3) MH recommendation.

[2] Cod 2: (1) MH topics (e.g., symptoms, diseases) and (2) MH-related topics (e.g., physical health).

Cluster Analysis

Pearson´s chi-square test was used to determine the variable independence (significance level 0.05). Symmetric and directional measures provided additional information. Independent variables were used to conduct a two-step cluster analysis (all variables were binary ones). The distance used was log-likelihood, and the grouping method was the Akaike information criterion.

Indicator Groups And Variables

The questions (Table 1) were classified into seven indicator groups (IG).

1) Mental symptoms (IG1). Independent variables: *loneliness*, *sleeping problems*, *bereavement* and *depression*. Non-independent variable: *anxiety*. Nondiscriminatory variable: *stress*. A nondiscriminatory variable has the same value (YES) in all documents.

2) Mental disorders (IG2). Independent variables: *schizophrenia*, *bipolar*, *depression*, *substance use disorder*, *eating disorder* and *obsessive-compulsive disorder*. Non-independent variables: *anxiety*, *chronic pain* and *dermatillomania*.

3) COVID-19 information (IG3). Independent variable: *Question 1* (Q1). Non-independent variables: *Q2* and *Q3*.

4) MH strategies and MH topics (IG4). Independent variables: *Q29, Q26, Q27* and *Q39*. Non-independent variables: *Q28* and *Q32*. Nondiscriminatory variables: *Q4, Q6* and *Q8*.

5) MH strategies and MH-related topics (IG5). Independent: *Q5, Q25, Q30, Q34* and *Q35*. Non-independent: *Q31, Q33, Q36, Q37* and *Q38*.

6) MH recommendations and MH topics (IG6). Independent: *Q9, Q10, Q11* and *Q14*. Non-independent: *Q12, Q13, Q15, Q16, Q17* and *Q21*. Nondiscriminatory: *Q7*.

7) MH recommendations and MH-related topics (IG7). Independent: *Q19, Q22, Q23* and *Q24*. Non-Independent: *Q20*.

Results

Study selection

The search strategy identified 88 documents published as of April 15th, 2020, as the most relevant documents at the beginning of the pandemic. No duplicates were found (Fig. 1). In the eligibility phase, 26 documents fulfilled the inclusion criteria (Fig. 1). There was strong agreement between CGA and NA (*kappa value* = 0.787, $p = 0.000$; *ICC* = 0.881, $p = 0.000$).

Study Characteristics

General population is the target for almost all the documents (99.06%, Table 2), and the predominant format is a report (73.1%). The documents with more positive “YES” answers were 1 and 13 (85.19%), and documents 5 and 11 had the lower rate (25.93%). Documents 1 and 13 are the most complete ones (Table 3) and documents 5 and 11 are the most specific.

Table 2
Documents included in the review

Code	Authors (year)	Country[1]	Target Population[2]	Document Type[3]
1	Australian Government [46]	1	1	2
2	Centre for Addiction and Mental Health [47]	2	1	2
3	Ireland's Health Services [48]	8	1	2
4	Mental Health Ireland [49]	8	1	2
5	Gobierno de México [50]	10	1	2
6	Mental Health America [51]	16	1	2
7	Centers for Disease Control and Prevention [52]	16	1	2
8	MindHK [53]	3	1	1
9	Centre for Health Protection [54]	3	1	2
10	New Zealand Government [55]	11	1	2
11	Spanish Society of Psychiatry [56]	14	1	1
12	Psychology General Council of Spain [57]	14	1	2
13	Gov.UK (United Kingdom Government) [58]	4	1	2
14	Mental Health Foundation [59]	4	1	2
15	Government of Canada [60]	2	1	2
16	Nidirect Government Services [61]	8	1	2
17	Santépsy.ch [62]	6	1	2
18	Confédération suisse [63]	15	1	2
19	Psychografimata [64]	7	1	2
20	Official College of Psychology of Catalonia [65]	14	1	1

[1] Countries: (1) Australia, (2) Canada, (3) China: Hong Kong, (4) England, (5) Finland, (6) Germany, Switzerland and France; CORAASP and CLASS, (7) Greece, (8) Ireland, (9) Italy, (10) Mexico, (11) New Zealand, (12) Portugal, (13) Scotland, (14) Spain, (15) Switzerland and (16) United States of America.

[2] Target population: (1) General population and (2) Older adults.

[3] Document type: (1) Report and (2) Web page.

Code	Authors (year)	Country[1]	Target Population[2]	Document Type[3]
21	Il post [66]	9	1	2
22	MIELI ry [67]	5	1	2
23	Ordem dos psicologos [68]	13	2	1
24	Beyond Blue [69]	1	1	2
25	Australian Psychological Society [70]	1	1	1
26	Mental Health Commission of Canada [71]	2	1	2

[1] Countries: (1) Australia, (2) Canada, (3) China: Hong Kong, (4) England, (5) Finland, (6) Germany, Switzerland and France; CORAASP and CLASS, (7) Greece, (8) Ireland, (9) Italy, (10) Mexico, (11) New Zealand, (12) Portugal, (13) Scotland, (14) Spain, (15) Switzerland and (16) United States of America.

[2] Target population: (1) General population and (2) Older adults.

[3] Document type: (1) Report and (2) Web page.

Table 3

Number of positive (YES) answers in percentage (%) per document and Indicator Group (IG)

Code	IG1	IG2	IG3	IG4	IG5	IG6	IG7	Total
1	50.00	**88.89**	**100.00**	77.78	80.00	**100.00**	**100.00**	**85.19**
2	83.33	66.67	**100.00**	88.89	80.00	91.67	40.00	79.63
3	**100.00**	77.78	**100.00**	44.44	60.00	83.33	60.00	72.22
4	**100.00**	66.67	**100.00**	77.78	40.00	83.33	60.00	72.22
5	33.33	22.22	0.00	33.33	10.00	33.33	40.00	25.93
6	66.67	66.67	**100.00**	88.89	**100.00**	91.67	60.00	83.33
7	83.33	33.33	**100.00**	**100.00**	90.00	75.00	80.00	77.78
8	**100.00**	11.11	66.67	33.33	20.00	50.00	0.00	37.04
9	50.00	22.22	**100.00**	33.33	20.00	83.33	60.00	48.15
10	50.00	11.11	**100.00**	66.67	90.00	**100.00**	80.00	70.37
11	50.00	33.33	0.00	33.33	30.00	16.67	0.00	25.93
12	83.33	22.22	0.00	66.67	50.00	58.33	40.00	50.00
13	**100.00**	44.44	**100.00**	**100.00**	90.00	**100.00**	60.00	**85.19**
14	83.33	77.78	**100.00**	66.67	70.00	83.33	60.00	75.93
15	83.33	22.22	**100.00**	55.56	60.00	75.00	20.00	57.41
16	83.33	22.22	**100.00**	44.44	80.00	83.33	80.00	66.67
17	50.00	66.67	**100.00**	44.44	70.00	66.67	40.00	61.11
18	66.67	66.67	**100.00**	44.44	70.00	66.67	40.00	62.96
19	33.33	11.11	66.67	55.56	60.00	50.00	40.00	44.44
20	66.67	11.11	**100.00**	66.67	60.00	66.67	40.00	55.56
21	66.67	22.22	**100.00**	33.33	40.00	75.00	40.00	50.00
22	50.00	66.67	**100.00**	55.56	60.00	75.00	80.00	66.67
23	66.67	22.22	**100.00**	33.33	20.00	41.67	20.00	37.04
24	**100.00**	22.22	**100.00**	**100.00**	90.00	83.33	80.00	79.63
25	83.33	77.78	**100.00**	33.33	60.00	66.67	**100.00**	68.52
26	83.33	55.56	**100.00**	55.56	70.00	75.00	40.00	66.67

Note. Bold guides with higher percentages and shadowed guides with lower percentages.

Results Of The Cluster Analysis

The cohesion and separation profile was excellent (greater than 0.5). No outlier document was found (Table 4). ANOVA showed significant results.

Table 4
Cluster analysis results for each Indicator Group (IG)

	Number of observations					
Indicator group (IG)	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6
IG1 Mental symptoms	7	4	8	7		
IG2 Mental disorders	9	17				
IG3 COVID-19 information	23	3				
IG4 MH strategies & MH topics	8	6	6	6		
IG5 MH strategies & MH-related topics	3	6	5	5	4	3
IG6 MH recommendations & MH topics	6	7	3	10		
IG7 MH recommendations & MH-related topics	4	8	8	3	3	

For IG1 (mental symptoms), almost 100% of the documents have information about *stress* and *anxiety*. *Depression* and *loneliness* are also widely covered (76.92% and 69.23% of the selected documents), and *sleeping problems* and *bereavement* are less frequently referenced (53.85% and 34.62%). Cluster 1 emphasizes *anxiety* and *depression*, cluster 2 highlights *loneliness*, *anxiety* and *stress*, cluster 3 adds to the previous *depression*, and cluster 4 focuses on *sleeping problems*, *stress*, *bereavement* and *depression*.

In IG2 (mental disorders), *anxiety* is the most highlighted disorder (96.15%), followed by *depression* and *substance use* (73.08% and 69.23%). The second most common disorders are *eating disorders*, *bipolar* and *obsessive-compulsive* disorders (42.31%, 30.77% and 30.77%). Finally, *somatoform* disorders are less relevant (7.69%). Cluster 1 highlights *schizophrenia*, *anxiety*, *depression*, *substance use* and *eating disorder*, and cluster 2 emphasizes *anxiety*, *depression* and *substance use*.

All the questions have a similar weight [80%, 90%] in IG3 (COVID-19 information), almost all the guides provide relevant information about COVID-19 (79.3%).

For IG4 (MH strategies & MH topics), all the guides include tips for *maintaining good MH*, *describe some psychological skills to help people cope with their anxiety and worry about COVID-19*, and *promote social connection at home*. Globally speaking (global layer, Fig. 2), question 26 (*information on how to support a loved one who is very anxious about COVID-19*) is the most relevant question (65.38% “YES”). It is

followed by questions 28 (*including information on how to manage stress in case of positive testing)*, 29 (*how to reduce stigma*) and 32 (*how to manage stress and anxiety*) (38.46% each). Question 27 (*stress management while people are waiting for COVID-19 test results*) is less relevant.

In IG4, Cluster 1 highlights *maintaining good MH* (*Q4*), *descriptions of psychological skills to help people with anxiety and worries* (*Q6*) and *promotion of social connection at home* (*Q8*). Cluster 2, in addition to the previous clusters, emphasizes *Q26* again. Cluster 3 also focuses on *reducing stigma* (*Q19*) and *Q26*. Finally, Cluster 4 emphasizes *Q26, including information on how to manage stress while people wait for results* (*Q27*) and *how to manage stress when they have a positive test* (*Q28*) (Fig. 2).

IG5 shows a global pattern (global layer, Fig. 2) dominated by *including information on how to maintain a healthy lifestyle* (*Q5*) and *including information for caregivers* (*Q35*). In the second-layer position are *the inclusion of information for healthcare workers* (*Q30*), *how to support them* (*Q31*), *developing advice on medication access* (*Q37*), and *working at home* (*Q38*). Cluster 1 highlights *information on how to maintain a healthy lifestyl*e (*Q5*), *including special mention of people with disabilities* (*Q25*), *including information for caregivers* (*Q35*), *including information on financial support* (*Q36*) and *developing advice for medication access* (*Q37*). Cluster 2 focuses ion *Q5*, *Q25, including information and support for healthcare workers* (*Q30*), *including information on how to support health care workers Q31*, *Q35*, *Q37* and *working at home* (*Q38*). Cluster 3 highlights *Q5*, *Q30*, *Q31* and *Q35*. Cluster 4 emphasizes *Q5*, *Q25*, *information for people suffering from domestic violence* (*Q34*) and *Q38.* Both Clusters 5 and 6 have only one relevant question each, *Q5* and *Q35*, respectively (Fig. 2).

The global profile of IG6 highlights all its questions (from 76.92–100%), except: *offer an online psychological assessment?* (*Q11*, 23.08%), *provide feedback on the psychological assessment results* (*Q12*, 19.23%) and *providing telephone or online contact with the general practitioner* (*Q14*, 38.46%). Cluster 1 has the same pattern, but *Q14* is less important. For Cluster 2, *Q11* and *Q12* are not relevant at all. Cluster 3 highlights *providing emotional support* (*Q7*) and *providing a community forum* (*Q17*). Cluster 4 emphasizes *Q7* and *describes how to access MH services* (*Q9*).

Globally speaking, IG7 highlights *include information for parents* (*Q19*, 88.46%), *how to explain the coronavirus to children* (*Q20*, 76.92%) and *providing alternatives for older adults to be connected* (*Q22*, 61.54%). Cluster 1 emphasizes all the questions except *including guidelines for COVID-19 outbreaks in residential care facilities* (*Q24*). In Cluster 2, *Q19* is the most relevant. Cluster 3 focuses on *Q19* and *Q22*. Cluster 4 is dominated by questions *Q19, Q20, Q22* and *Q24*. In Cluster 5, most answers are “NO”, except for *Q22*.

Some of the questions are linked in the documents, which means that when one question appears, the other question also appears (Yes&Yes answers). In IG1 (mental symptoms), most of the guides link *loneliness* and *depression* (54% of the documents), *anxiety* and *stress* (96%) and *anxiety* and *sleeping problems* (50%) symptoms, and the former two relationships are very strong. This is not the case for *depression* and *bereavement* (27%). The larger cluster (Cluster 3) shows a perfect link between *loneliness-depression* and *anxiety-stress*, with *anxiety-sleeping problems* also being strong.

In IG2 (mental disorders), there is a strong link between *anxiety* and *substance use* (65%) and *anxiety* and *depression* (69%), but *anxiety* and *eating disorders* and *anxiety-obsessive* and *compulsive disorder* have lower relevance (42% and 31%). Cluster 2 confirms the previous pattern, but both the *anxiety* and *substance use* and *anxiety* and *depression* links are less relevant.

In IG3 (COVID-19 information), very few documents (12%) do not link *…include information related to the latest information on COVID-19* (*Q1*) and *…include information on the latest news about the global response to the COVID-19 outbreak* (*Q3*).

In IG4, most of the selected documents do not link *include information on how to manage stress if they have tested positive* (*Q28*) and *include information on stigma and how to reduce it* (*Q29*) (Fig. 3).

The conceptual maps (Fig. 4) show that the relationship between *include psychological tips for maintaining good mental health and coping with COVID-19* (*Q4*), *describe some psychological skills to help people cope with anxiety and worry about COVID-19* (*Q6*) and *promote social connection at home* (*Q8*) are very strong. Progressively, strong links between the previous questions and *does the strategy include information on how to support a loved one who is very anxious about COVID-19* (*Q26*) and *Q29* appear. Finally, the questions *does the strategy include information on how to manage stress while people await test results* (*Q27*), *does the strategy include information on how to manage stress and anxiety* (*Q32*) and *are there any links for older people related to any symptoms or mental disorders* (*Q29*) are less linked.

In IG5, there is a strong link between *describing how to maintain a healthy lifestyle.* (*Q5*) and *develop advice on medication access during the COVID-19 pandemic* (*Q37*) (A, Fig. 5) and between *Q5* and *contemplate working at home* (*Q38*) (B). The relationships between *include information for healthcare workers* (*Q30*) and *include information on how to support health care workers* (*Q31*) (C) and between *Q30* and *develop a strategy for identifying healthcare staff needs as a result of the coronavirus pandemic* (*Q33*) (D) are less relevant. Cluster 2 highlights Yes&Yes in all the analyzed links.

In IG6, most of the documents strongly link *describe how to access MH services* (*Q9*) and *provide MH treatment/intervention alternatives* (*Q13*, 84%) as well as *Q9* and *provide telephone or online contact with the psychologist* (*Q15*, 81%). The relationship between *provide any phone or online MH services* (*Q16*) and *provide an online community forum* (*Q17*) is also important (52%).

In IG7 and from a global perspective, there is a strong link (77%) between *include information for parents* (*Q19*) and *include information on how to explain the coronavirus to children* (*Q20*). However, in clusters 2 and 3, *Q19* alone is also relevant. All the documents without *Q19* and *Q20* are concentrated in cluster 5.

Discussion

To the best of our knowledge, this is the first study to collect the empirical background on the main online international strategies and recommendations developed to cope with the psychological impact of

COVID-19. Considering its negative MH effects [36, 37], the existence of common patterns is relevant to a) classify documents from a multidimensional perspective (indicator groups), b) help others to develop new reports and guides, c) link key subjects appropriately according to the objectives, and d) adapt new documents to local situations in a coordinated way, assuring the dissemination of trusted information.

It was possible to adapt the PRISMA statements to review systematically online international MH reports and guides. This approach, combined with statistical analysis and conceptual maps, is appropriate for providing quick and robust results to decision makers for providing MH-oriented information in an emergency.

The new questionnaire successfully assessed the structure and the content of the selected documents. Its structure can be considered a gold standard for reviewing online documents related to MH strategy and recommendations. The new methodological approach surpasses qualitative approaches by using cluster analysis and conceptual maps. Selected documents were classified by 1) their degree of completion, 2) their degree of specificity by grouping the variables and 3) the purpose or objectives to be met (strategic, recommendations, MH topics and MH-related topics).

The common patterns can be studied from a unidimensional or multidimensional perspective. Anxiety and stress symptoms as well as anxiety disorders are developed in almost all documents. Comorbid pathologies such as substance use and depression are also frequently developed together. To include information about the pandemic characteristics and evolution as well as strategies or recommendations designed and implemented to deal with them is also relevant. MH decision makers highlight the relevance of people being informed by trusted sources because information reduces uncertainty. The selected documents include updated information not only about international strategies for fighting COVID-19 but also about how this fight is happening in order to avoid fear and panic.

All the selected documents emphasize the relevance of available practical tools for managing anxiety and worries about COVID-19 and maintaining social connections in order to have good MH. Most of them also highlight the need to design instruments to help others inside the family. Maintaining a healthy lifestyle and including information on how to take care of others are key subjects developed by the documents.

All countries are concerned about the importance of providing real emotional support. Therefore, a strong e-MH system, including coordinated telecommunications and computer-based tools, is required to meet population needs and to distinguish MH users from general population who need punctual counseling or community support. e-MH allows the screening of pandemic symptoms and mental disorder incidence to prevent new consequences. Knowing how to access MH care is critical in emergency situations. Finally, many documents develop child-adapted information for parents; however, very few have instruments adapted for older adults.

Most of the documents link loneliness and depression as well as anxiety and stress symptoms, frequently comorbid. Anxiety and substance use as well as anxiety and depression disorders are also

related because, during the pandemic, people are mainly suffering from anxiety, depression, posttraumatic stress and obsessive-compulsive disorder [38, 39].

Surprisingly, most of the documents do not include specific information about how to manage stress for persons who have tested positive and how to reduce the potential stigma of the infection. However, many documents link healthy lifestyle maintenance to advice on medication access (adherence). Both the information availability on medication access and on how to organize its accessibility are considered essential.

Working at home is suddenly new for some professionals. Selected documents provide tips about the management of the indispensable contact with supervisors and colleagues to feel supported. Performing safety and hygiene precautions while considering personal finances are essential in this situation [40]. A lack of information about how to manage this type of work can increase anxiety and stress levels.

There is global consensus about the relevance of appropriate information for healthcare workers. Many selected documents link this fact to practical tools for supporting these professionals. Nevertheless, it is less common to find tips for determining the needs of healthcare staff like those developed by the Academy of Medical Royal Colleges [41] and the City Mental Health Alliance UK [42].

In the selected documents, planners frequently link MH services access items to online treatment/intervention alternatives. This fact can be critical for screening and control purposes because of face-to-face constraints.

The main limitation of this review is the increasing number of documents that are being developed as response to the pandemic. This review was done rapidly at the beginning of the lockdown; therefore, it offers a global vision of the very first reactions of the MH planners to deal with the evolution of the pandemic.

Conclusions

The proposed methodology for systematic reviews of online documents can be easily adapted to any emergency and gives the opportunity to understand what the main subjects for decision makers in its beginning are. Its core is based on expert knowledge for adapting systematic review methods, designing questionnaires and integrating statistical analysis to produce useful results for rapid decision making. Expert knowledge is required for identifying key variables and domains. Results from cluster analysis highlight potential common patterns based on variable relationships. Once these critical components are stated, decision makers can use them to design context-based strategies and recommendations to support MH users and their families.

Community MH care model has been quickly adapted during the COVID-19 lockdown. Standard care provision should be adapted to digital care while ensuring acute patient treatments [43]. The model principles must be shifted from presential to online care, maintaining community-based care provision.

The community still has an essential role in preventing loneliness, anxiety or stress. e-MH is a useful resource in an emergency only because can integrate community MH care principles. To reach this goal, it is necessary to keep people informed, to ensure that they can stay socially connected and to reinforce e-MH resources [44, 45].

e-MH services must be led by specialized MH professionals in coordination with experts in MH-related topics such as healthy lifestyles, daily routines, financial and economic issues, work changes, family issues, etc. Additionally, hotlines must be offered to older adults and MH users with severe disorders.

It is crucial to develop strategies to avoid the stigmatization of people who have coronavirus, collectives at risk, MH users and healthcare workers. Computer and cellular-based techniques can be used for monitoring these people, but their use can be arguable from ethical and democratic perspectives.

Most of the selected documents include strategies for dealing with children online. Nevertheless, there is not enough online support for older adults. This service should be reinforced, including literacy skills training.

This global health crisis could be an opportunity to reinforce their e-MH systems. Finally, governments must ensure accessibility and equity to MH care services at any stage of any emergency.

Abbreviations

MH
Mental Health; WHO:World Health Organization; APA:American Psychological Association; UN:United Nations; ICC:Intraclass Correlation Coefficient; IG:Indicator group.

Declarations

Ethics approval and consent to participate

This study does not contain any studies with human participants or animals performed by any of the authors.

Consent for publication

Not applicable.

Availability of data and materials

All data supporting our findings will be shared on request. The documents included in the systematic review are available on the references.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

NA and CGA designed the study. NA and CGA carried out the systematic review. All authors reviewed the results and contributed to discussions about final version of tool for assessing the documents. NA, CGA and LSC drafted the manuscript and all authors contributed to and approved the final version. All authors read and approved the final version of the manuscript.

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Figures

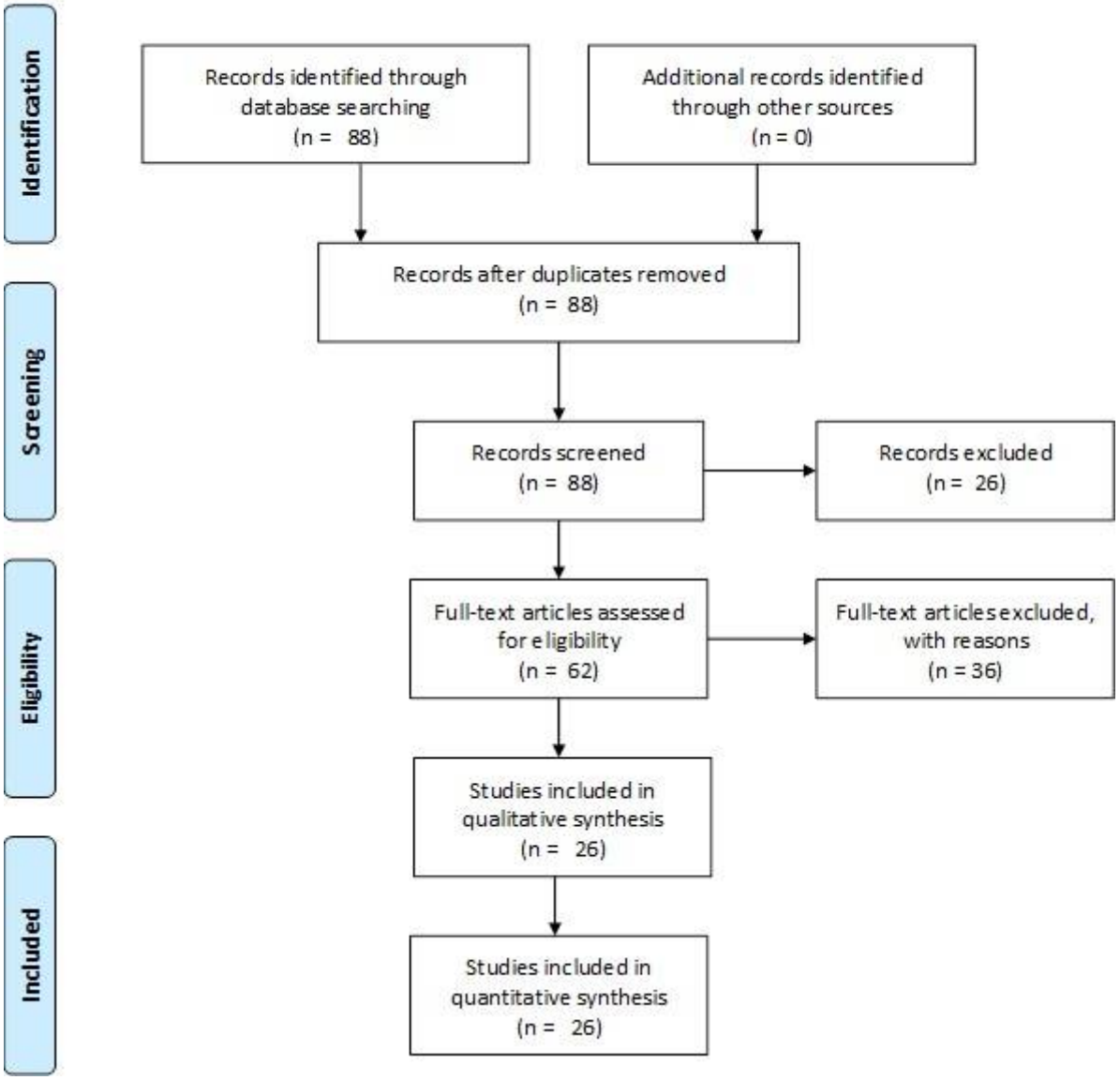

Figure 1

Flowchart and results. Adapted from Moher et al., 2009. Copyright 2009 by Moher et al.

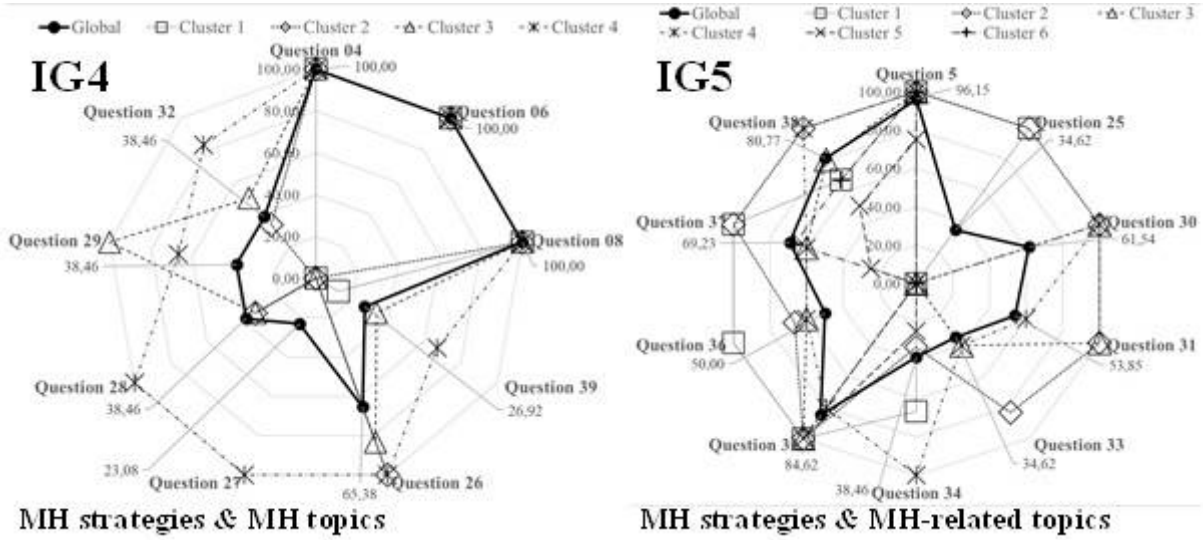

Figure 2

Percentages of positive (YES) answers for IG4 and IG5

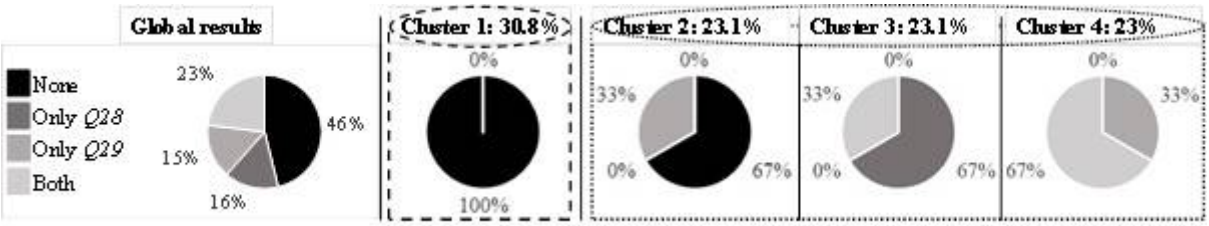

Figure 3

Q28-Q29

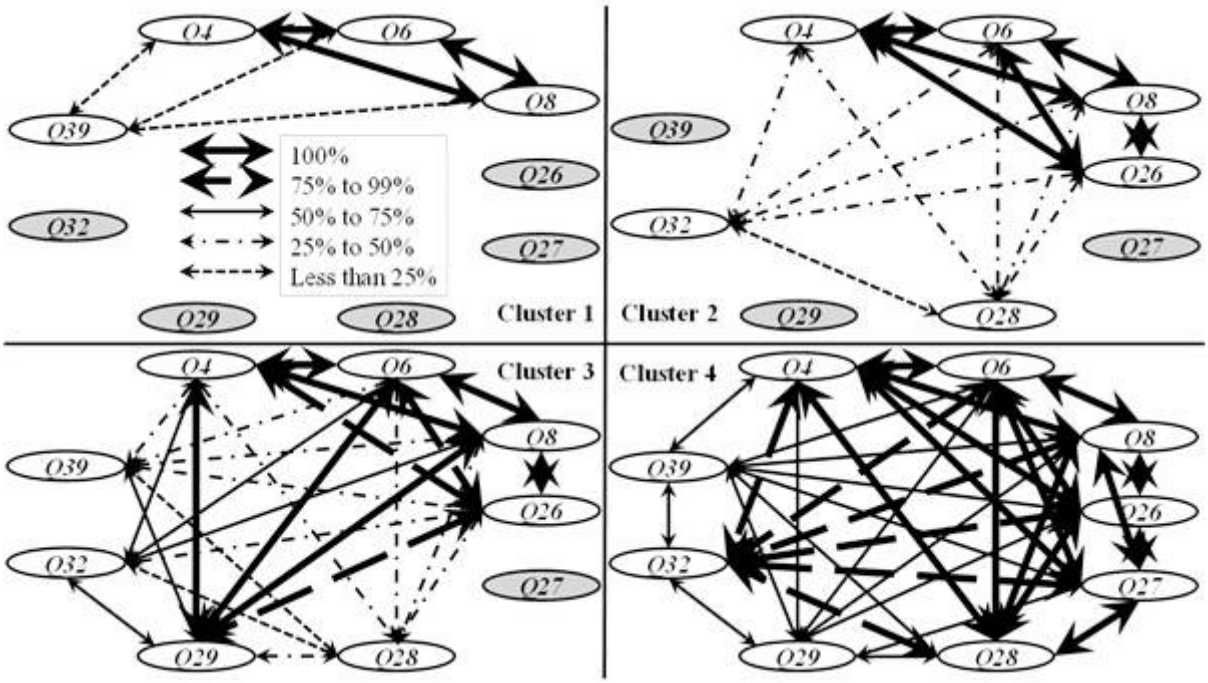

Figure 4

Conceptual maps of the IG4 clusters: evolution of the pattern. Thicker lines represent stronger links

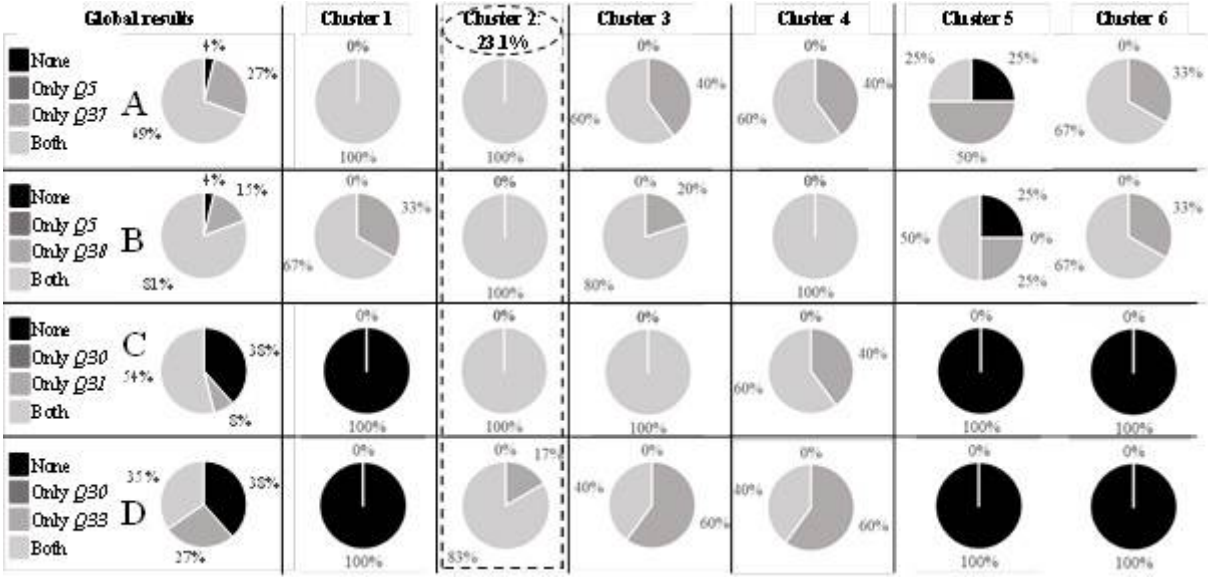

Figure 5

Q5-Q37 (A), Q5-Q38 (B), Q30-Q31 (C) and Q30-Q33 (D)

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- PRISMA2009flowdiagramAlmedaetal2506.doc

- PRISMA2009checklistAlmedaetal.doc